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<110> LYNCH, Berkley  
NOCKA, Karl  
FUKS, Bruno

<120> Methods for the identification of agents for the treatment of  
seizures, neurological diseases, endocrinopathies and hormonal  
diseases

<130> 53529-5007-02-US

<150> PCT/US2003/038122

<151> 2003-12-02

<150> US 60/430,372

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<151> 2003-09-30

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<170> PatentIn version 3.3

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	405	410	415
tat ttt caa gat gaa gaa tac aag tct aaa atg aag gtg ttt ttt ggt			1296
Tyr Phe Gln Asp Glu Glu Tyr Lys Ser Lys Met Lys Val Phe Phe Gly			
	420	425	430
gag cat gtg tac ggc gcc aca atc aac ttc acg atg gaa aat cag atc			1344
Glu His Val Tyr Gly Ala Thr Ile Asn Phe Thr Met Glu Asn Gln Ile			
	435	440	445
cac caa cat ggg aaa ctt gtg aat gat aag ttc aca aga atg tac ttt			1392
His Gln His Gly Lys Leu Val Asn Asp Lys Phe Thr Arg Met Tyr Phe			
	450	455	460
aaa cat gta ctc ttt gag gac aca ttc ttt gag gag tgc tat ttt gaa			1440
Lys His Val Leu Phe Glu Asp Thr Phe Phe Asp Glu Cys Tyr Phe Glu			
	465	470	475
gac gta aca tca aca gat acc tac ttc aaa aat tgt acc att gaa tca			1488
Asp Val Thr Ser Thr Asp Thr Tyr Phe Lys Asn Cys Thr Ile Glu Ser			
	485	490	495
acc atc ttt tac aac aca gac ctc tac gag cac aag ttc atc aac tgt			1536
Thr Ile Phe Tyr Asn Thr Asp Leu Tyr Glu His Lys Phe Ile Asn Cys			
	500	505	510
cgg ttt atc aac tcc acc ttc ctg gag cag aag gag ggc tgc cac atg			1584
Arg Phe Ile Asn Ser Thr Phe Leu Glu Gln Lys Glu Gly Cys His Met			

515					520					525						
gac	ttg	gag	caa	gat	aat	gac	ttc	ctg	att	tac	ctc	gtc	agc	ttc	ctg	1632
Asp	Leu	Glu	Gln	Asp	Asn	Asp	Phe	Leu	Ile	Tyr	Leu	Val	Ser	Phe	Leu	
530					535					540						
ggc	agc	ctg	tct	gtc	tta	ccc	ggg	aac	atc	att	tct	gcc	ctg	ctc	atg	1680
Gly	Ser	Leu	Ser	Val	Leu	Pro	Gly	Asn	Ile	Ile	Ser	Ala	Leu	Leu	Met	
545					550					555					560	
gat	aga	att	gga	agg	ctc	aag	atg	att	ggg	ggc	tcc	atg	cta	atc	tct	1728
Asp	Arg	Ile	Gly	Arg	Leu	Lys	Met	Ile	Gly	Gly	Ser	Met	Leu	Ile	Ser	
565					570					575						
gca	gtc	tgc	tgc	ttc	ttc	ctg	ttt	ttt	ggc	aac	agt	gag	tct	gca	atg	1776
Ala	Val	Cys	Cys	Phe	Phe	Leu	Phe	Phe	Gly	Asn	Ser	Glu	Ser	Ala	Met	
580					585					590						
atc	ggc	tgg	cag	tgc	ctg	ttc	tgt	ggg	aca	agc	att	gca	gcc	tgg	aat	1824
Ile	Gly	Trp	Gln	Cys	Leu	Phe	Cys	Gly	Thr	Ser	Ile	Ala	Ala	Trp	Asn	
595					600					605						
gct	ctg	gat	gtg	atc	aca	gtg	gag	ctg	tat	ccc	acc	aac	cag	aga	gca	1872
Ala	Leu	Asp	Val	Ile	Thr	Val	Glu	Leu	Tyr	Pro	Thr	Asn	Gln	Arg	Ala	
610					615					620						
aca	gcc	ttc	ggc	att	ctc	aat	gga	tta	tgc	aaa	ttt	ggc	gcc	atc	ctg	1920
Thr	Ala	Phe	Gly	Ile	Leu	Asn	Gly	Leu	Cys	Lys	Phe	Gly	Ala	Ile	Leu	
625					630					635					640	
gga	aac	acc	atc	ttt	gct	tct	ttt	gtt	ggg	ata	acc	aaa	gtg	gtc	ccc	1968
Gly	Asn	Thr	Ile	Phe	Ala	Ser	Phe	Val	Gly	Ile	Thr	Lys	Val	Val	Pro	
645					650					655						
atc	ctt	ctg	gct	gct	gct	tct	ctg	gtt	ggg	ggg	ctg	att	gcc	ctt		2016
Ile	Leu	Leu	Ala	Ala	Ala	Ser	Leu	Val	Gly	Gly	Gly	Leu	Ile	Ala	Leu	
660					665					670						
cga	ctg	cca	gag	act	cga	gaa	cag	gtc	ctg	atg	tga					2052
Arg	Leu	Pro	Glu	Thr	Arg	Glu	Gln	Val	Leu	Met						
675					680											

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 <211> 683  
 <212> PRT  
 <213> Homo sapiens

<400> 4

Met	Asp	Asp	Tyr	Lys	Tyr	Gln	Asp	Asn	Tyr	Gly	Gly	Tyr	Ala	Pro	Ser
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Asp	Gly	Tyr	Tyr	Arg	Gly	Asn	Glu	Ser	Asn	Pro	Glu	Glu	Asp	Ala	Gln
			20					25					30		

Ser Asp Val Thr Glu Gly His Asp Glu Glu Asp Glu Ile Tyr Glu Gly  
35 40 45

Glu Tyr Gln Gly Ile Pro His Pro Asp Asp Val Lys Ala Lys Gln Ala  
50 55 60

Lys Met Ala Pro Ser Arg Met Asp Ser Leu Arg Gly Gln Thr Asp Leu  
65 70 75 80

Met Ala Glu Arg Leu Glu Asp Glu Glu Gln Leu Ala His Gln Tyr Glu  
85 90 95

Thr Ile Met Asp Glu Cys Gly His Gly Arg Phe Gln Trp Ile Leu Phe  
100 105 110

Phe Val Leu Gly Leu Ala Leu Met Ala Asp Gly Val Glu Val Phe Val  
115 120 125

Val Ser Phe Ala Leu Pro Ser Ala Glu Lys Asp Met Cys Leu Ser Ser  
130 135 140

Ser Lys Lys Gly Met Leu Gly Met Ile Val Tyr Leu Gly Met Met Ala  
145 150 155 160

Gly Ala Phe Ile Leu Gly Gly Leu Ala Asp Lys Leu Gly Arg Lys Arg  
165 170 175

Val Leu Ser Met Ser Leu Ala Val Asn Ala Ser Phe Ala Ser Leu Ser  
180 185 190

Ser Phe Val Gln Gly Tyr Gly Ala Phe Leu Phe Cys Arg Leu Ile Ser  
195 200 205

Gly Ile Gly Ile Gly Gly Ala Leu Pro Ile Val Phe Ala Tyr Phe Ser  
210 215 220

Glu Phe Leu Ser Arg Glu Lys Arg Gly Glu His Leu Ser Trp Leu Gly  
225 230 235 240

Ile Phe Trp Met Thr Gly Gly Leu Tyr Ala Ser Ala Met Ala Trp Ser  
245 250 255

Ile Ile Pro His Tyr Gly Trp Gly Phe Ser Met Gly Thr Asn Tyr His  
260 265 270

Phe His Ser Trp Arg Val Phe Val Ile Val Cys Ala Leu Pro Cys Thr  
275 280 285

Val Ser Met Val Ala Leu Lys Phe Met Pro Glu Ser Pro Arg Phe Leu  
290 295 300

Leu Glu Met Gly Lys His Asp Glu Ala Trp Met Ile Leu Lys Gln Val  
305 310 315 320

His Asp Thr Asn Met Arg Ala Lys Gly Thr Pro Glu Lys Val Phe Thr  
325 330 335

Val Ser Asn Ile Lys Thr Pro Lys Gln Met Asp Glu Phe Ile Glu Ile  
340 345 350

Gln Ser Ser Thr Gly Thr Trp Tyr Gln Arg Trp Leu Val Arg Phe Lys  
355 360 365

Thr Ile Phe Lys Gln Val Trp Asp Asn Ala Leu Tyr Cys Val Met Gly  
370 375 380

Pro Tyr Arg Met Asn Thr Leu Ile Leu Ala Val Val Trp Phe Ala Met  
385 390 395 400

Ala Phe Ser Tyr Tyr Gly Leu Thr Val Trp Phe Pro Asp Met Ile Arg  
405 410 415

Tyr Phe Gln Asp Glu Glu Tyr Lys Ser Lys Met Lys Val Phe Phe Gly  
420 425 430

Glu His Val Tyr Gly Ala Thr Ile Asn Phe Thr Met Glu Asn Gln Ile  
435 440 445

His Gln His Gly Lys Leu Val Asn Asp Lys Phe Thr Arg Met Tyr Phe  
450 455 460

Lys His Val Leu Phe Glu Asp Thr Phe Phe Asp Glu Cys Tyr Phe Glu  
465 470 475 480

Asp Val Thr Ser Thr Asp Thr Tyr Phe Lys Asn Cys Thr Ile Glu Ser  
485 490 495

Thr Ile Phe Tyr Asn Thr Asp Leu Tyr Glu His Lys Phe Ile Asn Cys  
500 505 510

Arg Phe Ile Asn Ser Thr Phe Leu Glu Gln Lys Glu Gly Cys His Met  
515 520 525

Asp Leu Glu Gln Asp Asn Asp Phe Leu Ile Tyr Leu Val Ser Phe Leu  
530 535 540

Gly Ser Leu Ser Val Leu Pro Gly Asn Ile Ile Ser Ala Leu Leu Met  
545 550 555 560

Asp Arg Ile Gly Arg Leu Lys Met Ile Gly Gly Ser Met Leu Ile Ser  
565 570 575

Ala Val Cys Cys Phe Phe Leu Phe Phe Gly Asn Ser Glu Ser Ala Met  
580 585 590

Ile Gly Trp Gln Cys Leu Phe Cys Gly Thr Ser Ile Ala Ala Trp Asn  
595 600 605

Ala Leu Asp Val Ile Thr Val Glu Leu Tyr Pro Thr Asn Gln Arg Ala  
610 615 620

Thr Ala Phe Gly Ile Leu Asn Gly Leu Cys Lys Phe Gly Ala Ile Leu  
625 630 635 640

Gly Asn Thr Ile Phe Ala Ser Phe Val Gly Ile Thr Lys Val Val Pro  
645 650 655

Ile Leu Leu Ala Ala Ala Ser Leu Val Gly Gly Gly Leu Ile Ala Leu  
660 665 670

Arg Leu Pro Glu Thr Arg Glu Gln Val Leu Met  
675 680

<210> 5

<211> 2184

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(2184)

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Met Glu Asp Ser Tyr Lys Asp Arg Thr Ser Leu Met Lys Gly Ala Lys	
1 5 10 15	
 gac att gcc aga gag gtg aag aaa caa aca gta aag aag gtg aat caa	96
Asp Ile Ala Arg Glu Val Lys Lys Gln Thr Val Lys Lys Val Asn Gln	
20 25 30	
 gct gtg gac cga gcc cag gat gaa tac acc cag agg tcc tac agt cgg	144
Ala Val Asp Arg Ala Gln Asp Glu Tyr Thr Gln Arg Ser Tyr Ser Arg	
35 40 45	
 ttc caa gat gaa gaa gat gat gat gac tac tac ccg gct gga gaa acc	192
Phe Gln Asp Glu Glu Asp Asp Asp Asp Tyr Tyr Pro Ala Gly Glu Thr	
50 55 60	
 tat aat ggt gag gcc aac gat gac gaa ggc tca agt gaa gcc act gag	240
Tyr Asn Gly Glu Ala Asn Asp Asp Glu Gly Ser Ser Glu Ala Thr Glu	
65 70 75 80	
 ggg cat gat gaa gat gat gag atc tat gag ggg gag tat cag ggc atc	288
Gly His Asp Glu Asp Asp Glu Ile Tyr Glu Gly Glu Tyr Gln Gly Ile	
85 90 95	
 ccc agt atg aac caa gcg aag gac agc atc gtg tca gtg ggg cag ccc	336
Pro Ser Met Asn Gln Ala Lys Asp Ser Ile Val Ser Val Gly Gln Pro	
100 105 110	
 aag ggc gat gag tac aag gac cga cgg gag ctg gaa tca gaa agg aga	384
Lys Gly Asp Glu Tyr Lys Asp Arg Arg Glu Leu Glu Ser Glu Arg Arg	
115 120 125	
 gct gac gag gaa gag tta gcc cag cag tat gag ctg ata atc caa gaa	432
Ala Asp Glu Glu Glu Leu Ala Gln Gln Tyr Glu Leu Ile Ile Gln Glu	
130 135 140	
 tgc ggt cat ggt cgt ttt cag tgg gcc ctt ttc ttc gtc ctg ggc atg	480
Cys Gly His Gly Arg Phe Gln Trp Ala Leu Phe Phe Val Leu Gly Met	
145 150 155 160	
 gct ctt atg gca gac ggt gta gag gtg ttt gtc gtt ggc ttc gtg tta	528
Ala Leu Met Ala Asp Gly Val Glu Val Phe Val Val Gly Phe Val Leu	
165 170 175	
 ccc agt gct gag aca gac ctc tgc atc cca aat tca gga tct gga tgg	576
Pro Ser Ala Glu Thr Asp Leu Cys Ile Pro Asn Ser Gly Ser Gly Trp	
180 185 190	

cta ggc agc ata gtg tac ctc ggg atg atg gtg ggg gcg ttc ttc tgg Leu Gly Ser Ile Val Tyr Leu Gly Met Met Val Gly Ala Phe Phe Trp 195 200 205	624
gga gga ctg gca gac aaa gtg gga agg aaa cag tct ctt ctg att tgc Gly Gly Leu Ala Asp Lys Val Gly Arg Lys Gln Ser Leu Leu Ile Cys 210 215 220	672
atg tct gtc aac gga ttc ttt gcc ttc ctt tct tca ttt gtc caa ggt Met Ser Val Asn Gly Phe Phe Ala Phe Leu Ser Ser Phe Val Gln Gly 225 230 235 240	720
tat ggc ttc ttt ctc ttc tgt cgc tta ctt tct gga ttc ggg att gga Tyr Gly Phe Phe Leu Phe Cys Arg Leu Leu Ser Gly Phe Gly Ile Gly 245 250 255	768
gga gcc ata ccc act gtg ttc tcg tac ttt gct gaa gtc ctg gcc cgg Gly Ala Ile Pro Thr Val Phe Ser Tyr Phe Ala Glu Val Leu Ala Arg 260 265 270	816
gaa aag cgg ggc gaa cac ttg agc tgg ctc tgc atg ttc tgg atg atc Glu Lys Arg Gly Glu His Leu Ser Trp Leu Cys Met Phe Trp Met Ile 275 280 285	864
ggt ggc atc tac gcc tct gcc atg gcc tgg gcc atc atc ccg cac tac Gly Gly Ile Tyr Ala Ser Ala Met Ala Trp Ala Ile Ile Pro His Tyr 290 295 300	912
ggg tgg agc ttc agc atg gga tcg gcc tac cag ttt cac agt tgg cgt Gly Trp Ser Phe Ser Met Gly Ser Ala Tyr Gln Phe His Ser Trp Arg 305 310 315 320	960
gtg ttt gtc atc gtc tgt gca ctc ccc tgt gtc tcc tcc gtg gtg gcc Val Phe Val Ile Val Cys Ala Leu Pro Cys Val Ser Ser Val Val Ala 325 330 335	1008
ctc aca ttc atg cct gaa agc cca cga ttc ttg ttg gag gtt gga aaa Leu Thr Phe Met Pro Glu Ser Pro Arg Phe Leu Leu Glu Val Gly Lys 340 345 350	1056
cat gat gaa gct tgg atg att ctg aag tta att cat gac acc aac atg His Asp Glu Ala Trp Met Ile Leu Lys Leu Ile His Asp Thr Asn Met 355 360 365	1104
aga gcc cgg ggt cag cct gag aag gtc ttc acg gta aac aaa ata aaa Arg Ala Arg Gly Gln Pro Glu Lys Val Phe Thr Val Asn Lys Ile Lys 370 375 380	1152
act cct aaa caa ata gat gag ctg att gaa att gag agt gac aca gga Thr Pro Lys Gln Ile Asp Glu Leu Ile Glu Ile Glu Ser Asp Thr Gly 385 390 395 400	1200
aca tgg tat agg agg tgt ttt gtt cgg atc cgc acc gag ctg tac gga Thr Trp Tyr Arg Arg Cys Phe Val Arg Ile Arg Thr Glu Leu Tyr Gly 405 410 415	1248



att tgg ttg act ttt atg aga tgt ttc aac tac cca gtc agg gat aat Ile Trp Leu Thr Phe Met Arg Cys Phe Asn Tyr Pro Val Arg Asp Asn 420 425 430	1296
aca ata aag ctt aca att gtt tgg ttc acc ctg tcc ttt ggg tac tat Thr Ile Lys Leu Thr Ile Val Trp Phe Thr Leu Ser Phe Gly Tyr Tyr 435 440 445	1344
gga tta tcc gtt tgg ttc cct gat gtc att aaa cct ctg cag tcc gat Gly Leu Ser Val Trp Phe Pro Asp Val Ile Lys Pro Leu Gln Ser Asp 450 455 460	1392
gaa tat gca ttg cta acc aga aat gtg gag aga gat aaa tat gca aat Glu Tyr Ala Leu Leu Thr Arg Asn Val Glu Arg Asp Lys Tyr Ala Asn 465 470 475 480	1440
ttc act att aac ttt aca atg gaa aat cag att cat act gga atg gaa Phe Thr Ile Asn Phe Thr Met Glu Asn Gln Ile His Thr Gly Met Glu 485 490 495	1488
tac gac aat ggc aga ttc ata ggg gtc aag ttc aaa tct gta act ttc Tyr Asp Asn Gly Arg Phe Ile Gly Val Lys Phe Lys Ser Val Thr Phe 500 505 510	1536
aaa gac tct gtt ttt aag tcc tgc acc ttt gag gat gta act tca gtg Lys Asp Ser Val Phe Lys Ser Cys Thr Phe Glu Asp Val Thr Ser Val 515 520 525	1584
aac acc tac ttc aag aac tgc aca ttt att gac act gtt ttt gac aac Asn Thr Tyr Phe Lys Asn Cys Thr Phe Ile Asp Thr Val Phe Asp Asn 530 535 540	1632
aca gat ttt gag cca tat aaa ttc att gac agt gaa ttt aaa aac tgc Thr Asp Phe Glu Pro Tyr Lys Phe Ile Asp Ser Glu Phe Lys Asn Cys 545 550 555 560	1680
tcg ttt ttt cac aac aag acg gga tgt cag att acc ttt gat gat gac Ser Phe Phe His Asn Lys Thr Gly Cys Gln Ile Thr Phe Asp Asp Asp 565 570 575	1728
tat agt gcc tac tgg att tat ttt gtc aac ttt ctg ggg aca ttg gca Tyr Ser Ala Tyr Trp Ile Tyr Phe Val Asn Phe Leu Gly Thr Leu Ala 580 585 590	1776
gta ttg cca ggg aac att gtg tct gct ctg ctg atg gac aga att ggg Val Leu Pro Gly Asn Ile Val Ser Ala Leu Leu Met Asp Arg Ile Gly 595 600 605	1824
cgc tta aca atg cta ggt ggc tct atg gtg ctt tcg ggg atc agc tgt Arg Leu Thr Met Leu Gly Gly Ser Met Val Leu Ser Gly Ile Ser Cys 610 615 620	1872
ttc ttc ctt tgg ttc ggc acc agt gaa tcc atg atg ata ggc atg ctg Phe Phe Leu Trp Phe Gly Thr Ser Glu Ser Met Met Ile Gly Met Leu 625 630 635 640	1920

tgt	ctg	tac	aat	gga	ttg	acc	atc	tca	gcc	tgg	aac	tct	ctt	gac	gtg	1968
Cys	Leu	Tyr	Asn	Gly	Leu	Thr	Ile	Ser	Ala	Trp	Asn	Ser	Leu	Asp	Val	
			645						650					655		

gtc	act	gtg	gaa	ctg	tac	ccc	aca	gac	cgg	agg	gca	aca	ggc	ttt	ggc	2016
Val	Thr	Val	Glu	Leu	Tyr	Pro	Thr	Asp	Arg	Arg	Ala	Thr	Gly	Phe	Gly	
			660					665					670			

ttc	tta	aat	gcg	cta	tgc	aag	gca	gca	gcc	gtc	ctg	gga	aac	tta	ata	2064
Phe	Leu	Asn	Ala	Leu	Cys	Lys	Ala	Ala	Ala	Val	Leu	Gly	Asn	Leu	Ile	
		675					680					685				

ttt	ggc	tct	ctg	gtc	agc	atc	acc	aaa	tca	atc	ccc	atc	ctg	ctg	gct	2112
Phe	Gly	Ser	Leu	Val	Ser	Ile	Thr	Lys	Ser	Ile	Pro	Ile	Leu	Leu	Ala	
	690					695					700					

tct	act	gtg	ctc	gtg	tgt	gga	gga	ctc	gtt	ggg	ctg	tgc	ctg	cct	gac	2160
Ser	Thr	Val	Leu	Val	Cys	Gly	Gly	Leu	Val	Gly	Leu	Cys	Leu	Pro	Asp	
705					710					715					720	

aca	cga	acc	cag	gtt	ctg	atg	taa									2184
Thr	Arg	Thr	Gln	Val	Leu	Met										
			725													

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 <213> Homo sapiens

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Met	Glu	Asp	Ser	Tyr	Lys	Asp	Arg	Thr	Ser	Leu	Met	Lys	Gly	Ala	Lys
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Asp	Ile	Ala	Arg	Glu	Val	Lys	Lys	Gln	Thr	Val	Lys	Lys	Val	Asn	Gln
		20						25					30		

Ala	Val	Asp	Arg	Ala	Gln	Asp	Glu	Tyr	Thr	Gln	Arg	Ser	Tyr	Ser	Arg
		35					40					45			

Phe	Gln	Asp	Glu	Glu	Asp	Asp	Asp	Asp	Tyr	Tyr	Pro	Ala	Gly	Glu	Thr
	50					55					60				

Tyr	Asn	Gly	Glu	Ala	Asn	Asp	Asp	Glu	Gly	Ser	Ser	Glu	Ala	Thr	Glu
65					70					75					80

Gly	His	Asp	Glu	Asp	Asp	Glu	Ile	Tyr	Glu	Gly	Glu	Tyr	Gln	Gly	Ile
			85						90					95	

Pro Ser Met Asn Gln Ala Lys Asp Ser Ile Val Ser Val Gly Gln Pro  
100 105 110

Lys Gly Asp Glu Tyr Lys Asp Arg Arg Glu Leu Glu Ser Glu Arg Arg  
115 120 125

Ala Asp Glu Glu Glu Leu Ala Gln Gln Tyr Glu Leu Ile Ile Gln Glu  
130 135 140

Cys Gly His Gly Arg Phe Gln Trp Ala Leu Phe Phe Val Leu Gly Met  
145 150 155 160

Ala Leu Met Ala Asp Gly Val Glu Val Phe Val Val Gly Phe Val Leu  
165 170 175

Pro Ser Ala Glu Thr Asp Leu Cys Ile Pro Asn Ser Gly Ser Gly Trp  
180 185 190

Leu Gly Ser Ile Val Tyr Leu Gly Met Met Val Gly Ala Phe Phe Trp  
195 200 205

Gly Gly Leu Ala Asp Lys Val Gly Arg Lys Gln Ser Leu Leu Ile Cys  
210 215 220

Met Ser Val Asn Gly Phe Phe Ala Phe Leu Ser Ser Phe Val Gln Gly  
225 230 235 240

Tyr Gly Phe Phe Leu Phe Cys Arg Leu Leu Ser Gly Phe Gly Ile Gly  
245 250 255

Gly Ala Ile Pro Thr Val Phe Ser Tyr Phe Ala Glu Val Leu Ala Arg  
260 265 270

Glu Lys Arg Gly Glu His Leu Ser Trp Leu Cys Met Phe Trp Met Ile  
275 280 285

Gly Gly Ile Tyr Ala Ser Ala Met Ala Trp Ala Ile Ile Pro His Tyr  
290 295 300

Gly Trp Ser Phe Ser Met Gly Ser Ala Tyr Gln Phe His Ser Trp Arg  
305 310 315 320

Val Phe Val Ile Val Cys Ala Leu Pro Cys Val Ser Ser Val Val Ala  
325 330 335

Leu Thr Phe Met Pro Glu Ser Pro Arg Phe Leu Leu Glu Val Gly Lys  
340 345 350

His Asp Glu Ala Trp Met Ile Leu Lys Leu Ile His Asp Thr Asn Met  
355 360 365

Arg Ala Arg Gly Gln Pro Glu Lys Val Phe Thr Val Asn Lys Ile Lys  
370 375 380

Thr Pro Lys Gln Ile Asp Glu Leu Ile Glu Ile Glu Ser Asp Thr Gly  
385 390 395 400

Thr Trp Tyr Arg Arg Cys Phe Val Arg Ile Arg Thr Glu Leu Tyr Gly  
405 410 415

Ile Trp Leu Thr Phe Met Arg Cys Phe Asn Tyr Pro Val Arg Asp Asn  
420 425 430

Thr Ile Lys Leu Thr Ile Val Trp Phe Thr Leu Ser Phe Gly Tyr Tyr  
435 440 445

Gly Leu Ser Val Trp Phe Pro Asp Val Ile Lys Pro Leu Gln Ser Asp  
450 455 460

Glu Tyr Ala Leu Leu Thr Arg Asn Val Glu Arg Asp Lys Tyr Ala Asn  
465 470 475 480

Phe Thr Ile Asn Phe Thr Met Glu Asn Gln Ile His Thr Gly Met Glu  
485 490 495

Tyr Asp Asn Gly Arg Phe Ile Gly Val Lys Phe Lys Ser Val Thr Phe  
500 505 510

Lys Asp Ser Val Phe Lys Ser Cys Thr Phe Glu Asp Val Thr Ser Val  
515 520 525

Asn Thr Tyr Phe Lys Asn Cys Thr Phe Ile Asp Thr Val Phe Asp Asn  
530 535 540

Thr Asp Phe Glu Pro Tyr Lys Phe Ile Asp Ser Glu Phe Lys Asn Cys  
545 550 555 560

Ser Phe Phe His Asn Lys Thr Gly Cys Gln Ile Thr Phe Asp Asp Asp  
565 570 575

Tyr Ser Ala Tyr Trp Ile Tyr Phe Val Asn Phe Leu Gly Thr Leu Ala  
580 585 590

Val Leu Pro Gly Asn Ile Val Ser Ala Leu Leu Met Asp Arg Ile Gly  
595 600 605

Arg Leu Thr Met Leu Gly Gly Ser Met Val Leu Ser Gly Ile Ser Cys  
610 615 620

Phe Phe Leu Trp Phe Gly Thr Ser Glu Ser Met Met Ile Gly Met Leu  
625 630 635 640

Cys Leu Tyr Asn Gly Leu Thr Ile Ser Ala Trp Asn Ser Leu Asp Val  
645 650 655

Val Thr Val Glu Leu Tyr Pro Thr Asp Arg Arg Ala Thr Gly Phe Gly  
660 665 670

Phe Leu Asn Ala Leu Cys Lys Ala Ala Ala Val Leu Gly Asn Leu Ile  
675 680 685

Phe Gly Ser Leu Val Ser Ile Thr Lys Ser Ile Pro Ile Leu Leu Ala  
690 695 700

Ser Thr Val Leu Val Cys Gly Gly Leu Val Gly Leu Cys Leu Pro Asp  
705 710 715 720

Thr Arg Thr Gln Val Leu Met  
725

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<212> DNA  
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<222> (1)..(1647)

<400> 7

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cgt cgc aca ggc gag agt gca agg tca gag gac gac acg gct tca gga	96
Arg Arg Thr Gly Glu Ser Ala Arg Ser Glu Asp Asp Thr Ala Ser Gly	
20 25 30	
gag cat gaa gtc cag att gaa ggg gtc cac gtg ggc cta gag gct gtg	144
Glu His Glu Val Gln Ile Glu Gly Val His Val Gly Leu Glu Ala Val	
35 40 45	
gag ctg gat gat ggg gca gct gtg ccc aag gag ttt gcc aat ccc act	192
Glu Leu Asp Asp Gly Ala Val Pro Lys Glu Phe Ala Asn Pro Thr	
50 55 60	
gat gat act ttc atg gtg gaa gat gca gtg gaa gcc att ggc ttt gga	240
Asp Asp Thr Phe Met Val Glu Asp Ala Val Glu Ala Ile Gly Phe Gly	
65 70 75 80	
aaa ttt cag tgg aag ctg tct gtt ctc act ggc ttg gct tgg atg gct	288
Lys Phe Gln Trp Lys Leu Ser Val Leu Thr Gly Leu Ala Trp Met Ala	
85 90 95	
gat gcc atg gag atg atg atc ctc agc atc ctg gca cca cag ctg cat	336
Asp Ala Met Glu Met Met Ile Leu Ser Ile Leu Ala Pro Gln Leu His	
100 105 110	
tgc gag tgg agg ctc cca agc tgg cag gtg gca ttg ctg acc tcg gtg	384
Cys Glu Trp Arg Leu Pro Ser Trp Gln Val Ala Leu Leu Thr Ser Val	
115 120 125	
gtc ttt gta ggc atg atg tcc agc tcc acg ctc tgg gga aat atc tca	432
Val Phe Val Gly Met Met Ser Ser Ser Thr Leu Trp Gly Asn Ile Ser	
130 135 140	
gac cag tac ggc agg aaa aca ggg ctg aag atc agc gtg ctg tgg act	480
Asp Gln Tyr Gly Arg Lys Thr Gly Leu Lys Ile Ser Val Leu Trp Thr	
145 150 155 160	
ctg tac tat ggc atc ctt agt gca ttt gcg ccc gtg tat agc tgg atc	528
Leu Tyr Tyr Gly Ile Leu Ser Ala Phe Ala Pro Val Tyr Ser Trp Ile	
165 170 175	
ctg gtg ctc cgg ggc ctg gtg ggc ttc ggg atc gga gga gtt ccc cag	576
Leu Val Leu Arg Gly Leu Val Gly Phe Gly Ile Gly Gly Val Pro Gln	
180 185 190	
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Gln

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Glu	Tyr	Gln	Gly	Ile	Pro	Arg	Ala	Glu	Ser	Gly	Gly	Lys	Gly	Glu	Arg
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Arg	Glu	Glu	Leu	Ala	Gln	Gln	Tyr	Glu	Thr	Ile	Leu	Arg	Glu	Cys	Gly
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His	Gly	Arg	Phe	Gln	Trp	Thr	Leu	Tyr	Phe	Val	Leu	Gly	Leu	Ala	Leu
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Met	Ala	Asp	Gly	Val	Glu	Val	Phe	Val	Val	Gly	Phe	Val	Leu	Pro	Ser
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Ile	Pro	Ile	Val	Phe	Ser	Tyr	Phe	Ser	Glu	Phe	Leu	Ala	Gln	Glu	Lys				
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Asn Asp Lys Phe	Ile Gly Leu Arg Leu Lys Ser Val Ser Phe Glu Asp					
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Ser Leu Phe Glu	Glu Cys Tyr Phe Glu Asp Val Thr Ser Ser Asn Thr					
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Phe Phe Arg Asn	Cys Thr Phe Ile Asn Thr Val Phe Tyr Asn Thr Asp					
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Leu Phe Glu Tyr	Lys Phe Val Asn Ser Arg Leu Val Asn Ser Thr Phe					
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Leu His Asn Lys	Glu Gly Cys Pro Leu Asp Val Thr Gly Thr Gly Glu					
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Gly Ala Tyr Met	Val Tyr Phe Val Ser Phe Leu Gly Thr Leu Ala Val					
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Asp Gly Tyr Tyr Arg Gly Asn Glu Gln Asn Pro Glu Glu Asp Ala Gln			
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agc gat gtt aca gaa ggc cac gat gaa gag gat gag atc tat gag ggc			144
Ser Asp Val Thr Glu Gly His Asp Glu Glu Asp Glu Ile Tyr Glu Gly			
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Glu Tyr Gln Gly Ile Pro His Pro Asp Asp Val Lys Ser Lys Gln Thr			
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aag atg gca ccg tcc aga gca gat ggc ctt cgg ggc cag gca gac ctg			240
Lys Met Ala Pro Ser Arg Ala Asp Gly Leu Arg Gly Gln Ala Asp Leu			
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atg gct gag aga atg gaa gat gag gag cag ctc gct cac cag tac gag			288
Met Ala Glu Arg Met Glu Asp Glu Glu Gln Leu Ala His Gln Tyr Glu			
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acc atc att gat gag tgt ggc cat ggg cgc ttc cag tgg acc ctc ttt			336
Thr Ile Ile Asp Glu Cys Gly His Gly Arg Phe Gln Trp Thr Leu Phe			
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ttc gtc ttg gtc ttg gcc ttg atg gct gac gga gtg gaa gtg ttt gtg			384
Phe Val Leu Val Leu Ala Leu Met Ala Asp Gly Val Glu Val Phe Val			

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Tyr	Phe	Gln	Asp	Glu	Glu	Tyr	Lys	Ser	Lys	Met	Lys	Val	Phe	Phe	Gly				
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Ile Leu Leu Ala Ala Ala Ser Leu Val Gly Gly Gly Leu Val Ala Leu																				
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Val Leu Ser Met Ser Leu Ala Ile Asn Ala Ser Phe Ala Ser Leu Ser  
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Ser Phe Val Gln Gly Tyr Gly Ala Phe Leu Phe Cys Arg Leu Ile Ser  
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Phe His Ser Trp Arg Val Phe Val Ile Val Cys Ala Leu Pro Ala Thr  
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His Asp Thr Asn Met Arg Ala Lys Gly Thr Pro Glu Lys Val Phe Thr  
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Val Ser His Ile Lys Thr Pro Lys Gln Met Asp Glu Phe Ile Glu Ile  
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Lys His Val Leu Phe Glu Asp Thr Phe Phe Asp Lys Cys Tyr Phe Glu  
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Asp Asp Asp Asp Asp Tyr Tyr Pro Pro Gly Glu Thr Tyr Ser Gly Glu	
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Ala Asn Asp Asp Glu Gly Ser Ser Glu Ala Thr Glu Gly His Asp Glu	
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Gln Gly Lys Asp Ser Ile Val Ser Val Gly Gln Pro Lys Gly Asp Glu	
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Tyr Lys Asp Arg Arg Glu Leu Glu Ser Glu Arg Arg Ala Asp Glu Glu	
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Gly	Phe	Phe	Ala	Phe	Leu	Ser	Ser	Phe	Val	Gln	Gly	Tyr	Gly	Phe	Phe		
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agc	atg	ggc	tca	gcc	tac	cag	ttc	cac	agc	tgg	cgc	gtc	ttc	gtc	atc	1195	
Ser	Met	Gly	Ser	Ala	Tyr	Gln	Phe	His	Ser	Trp	Arg	Val	Phe	Val	Ile		
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Val	Cys	Ala	Leu	Pro	Cys	Val	Ser	Ser	Val	Val	Ala	Leu	Thr	Phe	Met		
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ccc	gaa	agc	cct	cgg	ttc	ttg	ctg	gag	gta	gga	aaa	cat	gat	gaa	gcc	1291	
Pro	Glu	Ser	Pro	Arg	Phe	Leu	Leu	Glu	Val	Gly	Lys	His	Asp	Glu	Ala		
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tgg	atg	att	ctg	aag	cta	att	cat	gat	acc	aac	atg	aga	gcc	cgg	ggc	1339	
Trp	Met	Ile	Leu	Lys	Leu	Ile	His	Asp	Thr	Asn	Met	Arg	Ala	Arg	Gly		
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cag	cca	gag	aag	gtc	ttc	acg	gta	aat	aaa	atc	aag	act	ccc	aag	caa	1387	
Gln	Pro	Glu	Lys	Val	Phe	Thr	Val	Asn	Lys	Ile	Lys	Thr	Pro	Lys	Gln		
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ata	gat	gag	ctg	att	gag	att	gag	agc	gac	aca	gga	acc	tgg	tac	cgg	1435	
Ile	Asp	Glu	Leu	Ile	Glu	Ile	Glu	Ser	Asp	Thr	Gly	Thr	Trp	Tyr	Arg		
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agg	tgt	ttt	gtt	cgg	atc	cgc	aca	gaa	ctg	tac	gga	att	tgg	ttg	act	1483	
Arg	Cys	Phe	Val	Arg	Ile	Arg	Thr	Glu	Leu	Tyr	Gly	Ile	Trp	Leu	Thr		
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Phe Met Arg Cys Phe Asn Tyr Pro Val Arg Glu Asn Thr Ile Lys Leu	
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Thr Ile Val Trp Phe Thr Leu Ser Phe Gly Tyr Tyr Gly Leu Ser Val	
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Trp Phe Pro Asp Val Ile Lys His Leu Gln Ser Asp Glu Tyr Ala Leu	
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ctg act cgg aat gtg cag aag gat aaa tat gca aac ttt agc att aac	1675
Leu Thr Arg Asn Val Gln Lys Asp Lys Tyr Ala Asn Phe Ser Ile Asn	
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Phe Thr Met Glu Asn Gln Val His Thr Gly Met Glu Tyr Asp Asn Gly	
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Arg Phe Leu Gly Val Lys Phe Lys Ser Val Thr Phe Lys Asp Ser Val	
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Lys Asn Cys Thr Phe Ile Asp Thr Leu Phe Glu Asn Thr Asp Phe Glu	
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Pro Tyr Lys Phe Ile Asp Ser Glu Phe Gln Asn Cys Ser Phe Leu His	
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Asn Lys Thr Gly Cys Gln Ile Thr Phe Asp Asp Asp Tyr Ser Ala Tyr	
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Trp Ile Tyr Phe Val Asn Phe Leu Gly Thr Leu Ala Val Leu Pro Gly	
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Leu	Tyr	Pro	Thr	Asp	Arg	Arg	Ala	Thr	Gly	Phe	Gly	Phe	Leu	Asn	Ala	
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ctc	tgt	aaa	gca	gcg	gcc	gtc	ctg	gga	aac	tta	ata	ttc	ggc	tcc	ttg	2299
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gtc	agc	atc	acc	aaa	gca	atc	cct	atc	ctg	ctg	gct	tcc	acc	gtg	ctc	2347
Val	Ser	Ile	Thr	Lys	Ala	Ile	Pro	Ile	Leu	Leu	Ala	Ser	Thr	Val	Leu	
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Val	Cys	Gly	Gly	Leu	Val	Gly	Leu	Arg	Leu	Pro	Asp	Thr	Arg	Thr	Gln	
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Val	Leu	Met														
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Phe	Gln	Asp	Glu	Asp	Asp	Asp	Asp	Tyr	Tyr	Pro	Pro	Gly	Glu	Thr		
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Gly His Asp Glu Glu Asp Glu Ile Tyr Glu Gly Glu Tyr Gln Gly Ile  
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Pro Ser Thr Asn Gln Gly Lys Asp Ser Ile Val Ser Val Gly Gln Pro  
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Cys Gly His Gly Arg Phe Gln Trp Ala Leu Phe Phe Val Leu Gly Met  
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Ala Leu Met Ala Asp Gly Val Glu Val Phe Val Val Gly Phe Val Leu  
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Pro Ser Ala Glu Thr Asp Leu Cys Ile Pro Asn Ser Gly Ser Gly Trp  
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Leu Gly Ser Ile Val Tyr Leu Gly Met Met Val Gly Ala Phe Phe Trp  
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Gly Gly Leu Ala Asp Lys Val Gly Arg Lys Gln Ser Leu Leu Ile Cys  
210 215 220

Met Ser Val Asn Gly Phe Phe Ala Phe Leu Ser Ser Phe Val Gln Gly  
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Tyr Gly Phe Phe Leu Leu Cys Arg Leu Leu Ser Gly Phe Gly Ile Gly  
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Gly Ala Ile Pro Thr Val Phe Ser Tyr Phe Ala Glu Val Leu Ala Arg  
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Glu Lys Arg Gly Glu His Leu Ser Trp Leu Cys Met Phe Trp Met Ile  
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Gly Gly Ile Tyr Ala Ser Ala Met Ala Trp Ala Ile Ile Pro His Tyr  
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Gly Trp Ser Phe Ser Met Gly Ser Ala Tyr Gln Phe His Ser Trp Arg  
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Val Phe Val Ile Val Cys Ala Leu Pro Cys Val Ser Ser Val Val Ala  
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His Asp Glu Ala Trp Met Ile Leu Lys Leu Ile His Asp Thr Asn Met  
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Arg Ala Arg Gly Gln Pro Glu Lys Val Phe Thr Val Asn Lys Ile Lys  
370 375 380

Thr Pro Lys Gln Ile Asp Glu Leu Ile Glu Ile Glu Ser Asp Thr Gly  
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Ile Trp Leu Thr Phe Met Arg Cys Phe Asn Tyr Pro Val Arg Glu Asn  
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Thr Ile Lys Leu Thr Ile Val Trp Phe Thr Leu Ser Phe Gly Tyr Tyr  
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Gly Leu Ser Val Trp Phe Pro Asp Val Ile Lys His Leu Gln Ser Asp  
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Glu Tyr Ala Leu Leu Thr Arg Asn Val Gln Lys Asp Lys Tyr Ala Asn  
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Phe Ser Ile Asn Phe Thr Met Glu Asn Gln Val His Thr Gly Met Glu  
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Tyr Asp Asn Gly Arg Phe Leu Gly Val Lys Phe Lys Ser Val Thr Phe  
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Lys Asp Ser Val Phe Lys Ser Cys Thr Phe Asp Asp Val Thr Ser Val  
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Asn Thr Tyr Phe Lys Asn Cys Thr Phe Ile Asp Thr Leu Phe Glu Asn  
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Thr Asp Phe Glu Pro Tyr Lys Phe Ile Asp Ser Glu Phe Gln Asn Cys  
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Ser Phe Leu His Asn Lys Thr Gly Cys Gln Ile Thr Phe Asp Asp Asp  
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Tyr Ser Ala Tyr Trp Ile Tyr Phe Val Asn Phe Leu Gly Thr Leu Ala  
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Val Leu Pro Gly Asn Ile Val Ser Ala Leu Leu Met Asp Arg Ile Gly  
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Arg Leu Thr Met Leu Gly Gly Ser Met Val Leu Ser Gly Ile Ser Cys  
610 615 620

Phe Phe Leu Trp Phe Gly Thr Ser Glu Ser Met Met Ile Gly Met Leu  
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Cys Leu Tyr Asn Gly Leu Thr Ile Ser Ala Trp Asn Ser Leu Asp Val  
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Val Thr Val Glu Leu Tyr Pro Thr Asp Arg Arg Ala Thr Gly Phe Gly  
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Phe Leu Asn Ala Leu Cys Lys Ala Ala Ala Val Leu Gly Asn Leu Ile  
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Phe Gly Ser Leu Val Ser Ile Thr Lys Ala Ile Pro Ile Leu Leu Ala  
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Arg	Arg	Thr	Gly	Glu	Ser	Ala	Arg	Ser	Glu	Asp	Asp	Ala	Ala	Ser	Gly	
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gaa	cat	gat	gtt	cag	att	gag	ggg	gtc	cga	gtg	ggc	cta	gaa	gct	gtc	144
Glu	His	Asp	Val	Gln	Ile	Glu	Gly	Val	Arg	Val	Gly	Leu	Glu	Ala	Val	
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gag	ctg	gat	gat	gga	gca	gct	gtc	ccc	aag	gag	ttt	gcc	aat	ccc	act	192
Glu	Leu	Asp	Asp	Gly	Ala	Ala	Val	Pro	Lys	Glu	Phe	Ala	Asn	Pro	Thr	
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gat	gac	act	ttc	atg	gtc	gaa	gat	gcg	gtg	gaa	gcc	att	ggg	ttc	gga	240
Asp	Asp	Thr	Phe	Met	Val	Glu	Asp	Ala	Val	Glu	Ala	Ile	Gly	Phe	Gly	
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aga	ttc	cag	tgg	aag	ctc	tct	gtt	ctc	acc	ggc	ttg	gct	tgg	atg	gcg	288
Arg	Phe	Gln	Trp	Lys	Leu	Ser	Val	Leu	Thr	Gly	Leu	Ala	Trp	Met	Ala	
			85					90						95		

gac	gcc	atg	gag	atg	atg	att	ctg	agc	atc	ctg	gcg	cct	cag	ctg	cac	336
Asp	Ala	Met	Glu	Met	Met	Ile	Leu	Ser	Ile	Leu	Ala	Pro	Gln	Leu	His	
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Cys	Glu	Trp	Arg	Leu	Pro	Ser	Trp	Gln	Val	Ala	Leu	Leu	Thr	Ser	Val	
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Val	Phe	Ile	Gly	Met	Met	Ser	Ser	Ser	Thr	Leu	Trp	Gly	Asn	Ile	Ser	
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ctg	tac	tac	ggc	atc	ctc	agc	gct	ttc	gcg	cca	gtg	tat	agc	tgg	atc	528
Leu	Tyr	Tyr	Gly	Ile	Leu	Ser	Ala	Phe	Ala	Pro	Val	Tyr	Ser	Trp	Ile	
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ctg	gtg	ctc	cga	ggc	ctc	gtg	ggc	ttt	ggg	att	gga	ggg	gtg	cct	cag	576
Leu	Val	Leu	Arg	Gly	Leu	Val	Gly	Phe	Gly	Ile	Gly	Gly	Val	Pro	Gln	
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tcg	gtg	acc	ctg	tac	gcc	gag	ttc	ctc	ccc	atg	aag	gcc	aga	gcc	aag	624
Ser	Val	Thr	Leu	Tyr	Ala	Glu	Phe	Leu	Pro	Met	Lys	Ala	Arg	Ala	Lys	
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tgc	att	ttg	ctg	att	gag	gtt	ttc	tgg	gcc	atc	ggg	acc	gtg	ttc	gag	672
Cys	Ile	Leu	Leu	Ile	Glu	Val	Phe	Trp	Ala	Ile	Gly	Thr	Val	Phe	Glu	
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Val	Leu	Leu	Ala	Val	Phe	Val	Met	Pro	Ser	Leu	Gly	Trp	Arg	Trp	Leu	
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ctg	ctg	ctg	tgc	gcc	gct	cca	cta	ctt	gtc	ttt	gct	gtt	ctg	tgt	ttc	768
Leu	Leu	Leu	Ser	Ala	Ala	Pro	Leu	Leu	Val	Phe	Ala	Val	Leu	Cys	Phe	
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tgg	ctg	cca	gag	agt	gct	agg	tac	gat	gtg	ctg	tct	ggg	aac	cag	gaa	816
Trp	Leu	Pro	Glu	Ser	Ala	Arg	Tyr	Asp	Val	Leu	Ser	Gly	Asn	Gln	Glu	
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aag	gcg	att	gct	acc	tta	aag	cgg	atc	gca	aca	gaa	aat	gga	gcc	ccc	864
Lys	Ala	Ile	Ala	Thr	Leu	Lys	Arg	Ile	Ala	Thr	Glu	Asn	Gly	Ala	Pro	
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Met	Pro	Leu	Gly	Lys	Leu	Ile	Ile	Ser	Arg	Gln	Glu	Asp	Arg	Gly	Lys	
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Met	Arg	Asp	Leu	Phe	Thr	Pro	His	Phe	Arg	Trp	Thr	Thr	Leu	Leu	Leu	
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tgg	ttt	ata	tgg	ttc	tcc	aat	gcc	ttc	tct	tat	tac	ggc	ttg	gtt	ctg	1008
Trp	Phe	Ile	Trp	Phe	Ser	Asn	Ala	Phe	Ser	Tyr	Tyr	Gly	Leu	Val	Leu	
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ctc	acc	aca	gaa	ctc	ttc	cag	gcc	gga	gat	gtt	tgc	agc	atc	tcc	agc	1056
Leu	Thr	Thr	Glu	Leu	Phe	Gln	Ala	Gly	Asp	Val	Cys	Ser	Ile	Ser	Ser	
			340					345					350			
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Arg	Lys	Lys	Ala	Val	Glu	Ala	Lys	Cys	Ser	Leu	Ala	Cys	Glu	Tyr	Leu	
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Ser	Lys	Glu	Asp	Tyr	Met	Asp	Leu	Leu	Trp	Thr	Thr	Leu	Ser	Glu	Phe	
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Pro	Gly	Val	Leu	Val	Thr	Leu	Trp	Val	Ile	Asp	Arg	Leu	Gly	Arg	Lys	
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Lys	Thr	Met	Ala	Leu	Cys	Phe	Val	Ile	Phe	Ser	Leu	Cys	Ser	Leu	Leu	
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gca aga gcg ttt att tct gga ggc ttc caa gca gcc tac gtt tac acg 1344  
Ala Arg Ala Phe Ile Ser Gly Gly Phe Gln Ala Ala Tyr Val Tyr Thr  
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cct gag gtg tat cca acg gcg acg agg gcg ctg ggc ctg ggc acc tgc 1392  
Pro Glu Val Tyr Pro Thr Ala Thr Arg Ala Leu Gly Leu Gly Thr Cys  
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agc ggc atg gcg aga gtg ggc gcg ctc atc act cca ttc ata gct cag 1440  
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aaa ggc cga gca ctg cag gag tcc agc cac cgg gag tgg ggc cag gag 1584  
Lys Gly Arg Ala Leu Gln Glu Ser Ser His Arg Glu Trp Gly Gln Glu  
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Met	Val	Gly	Arg	Gly	Thr	Asn	Ser	Thr	Gly	Val	Pro	Arg	Ser	Asn	Ser	
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Glu Leu Asp Asp Gly Ala Ala Val Pro Lys Glu Phe Ala Asn Pro Thr  
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Asp Asp Thr Phe Met Val Glu Asp Ala Val Glu Ala Ile Gly Phe Gly  
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Arg Phe Gln Trp Lys Leu Ser Val Leu Thr Gly Leu Ala Trp Met Ala  
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Asp Ala Met Glu Met Met Ile Leu Ser Ile Leu Ala Pro Gln Leu His  
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Cys Glu Trp Arg Leu Pro Ser Trp Gln Val Ala Leu Leu Thr Ser Val  
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Val Phe Ile Gly Met Met Ser Ser Ser Thr Leu Trp Gly Asn Ile Ser  
130 135 140

Asp Gln Tyr Gly Arg Lys Thr Gly Leu Lys Ile Ser Val Phe Trp Thr  
145 150 155 160

Leu Tyr Tyr Gly Ile Leu Ser Ala Phe Ala Pro Val Tyr Ser Trp Ile  
165 170 175

Leu Val Leu Arg Gly Leu Val Gly Phe Gly Ile Gly Gly Val Pro Gln  
180 185 190

Ser Val Thr Leu Tyr Ala Glu Phe Leu Pro Met Lys Ala Arg Ala Lys  
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Cys Ile Leu Leu Ile Glu Val Phe Trp Ala Ile Gly Thr Val Phe Glu  
210 215 220

Val Leu Leu Ala Val Phe Val Met Pro Ser Leu Gly Trp Arg Trp Leu  
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Leu Leu Leu Ser Ala Ala Pro Leu Leu Val Phe Ala Val Leu Cys Phe  
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Trp Leu Pro Glu Ser Ala Arg Tyr Asp Val Leu Ser Gly Asn Gln Glu  
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Lys Ala Ile Ala Thr Leu Lys Arg Ile Ala Thr Glu Asn Gly Ala Pro  
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Met Pro Leu Gly Lys Leu Ile Ile Ser Arg Gln Glu Asp Arg Gly Lys  
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Met Arg Asp Leu Phe Thr Pro His Phe Arg Trp Thr Thr Leu Leu Leu  
305 310 315 320

Trp Phe Ile Trp Phe Ser Asn Ala Phe Ser Tyr Tyr Gly Leu Val Leu  
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340 345 350

Arg Lys Lys Ala Val Glu Ala Lys Cys Ser Leu Ala Cys Glu Tyr Leu  
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Ser Lys Glu Asp Tyr Met Asp Leu Leu Trp Thr Thr Leu Ser Glu Phe  
370 375 380

Pro Gly Val Leu Val Thr Leu Trp Val Ile Asp Arg Leu Gly Arg Lys  
385 390 395 400

Lys Thr Met Ala Leu Cys Phe Val Ile Phe Ser Leu Cys Ser Leu Leu  
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Leu Phe Ile Cys Ile Gly Arg Asn Val Leu Thr Leu Leu Leu Phe Ile  
420 425 430

Ala Arg Ala Phe Ile Ser Gly Gly Phe Gln Ala Ala Tyr Val Tyr Thr  
435 440 445

Pro Glu Val Tyr Pro Thr Ala Thr Arg Ala Leu Gly Leu Gly Thr Cys  
450 455 460

Ser Gly Met Ala Arg Val Gly Ala Leu Ile Thr Pro Phe Ile Ala Gln  
465 470 475 480

Val Met Leu Glu Ser Ser Val Tyr Leu Thr Leu Ala Val Tyr Ser Gly  
485 490 495

Cys Cys Leu Leu Ala Ala Leu Ala Ser Cys Phe Leu Pro Ile Glu Thr  
500 505 510

Lys Gly Arg Ala Leu Gln Glu Ser Ser His Arg Glu Trp Gly Gln Glu  
515 520 525

Met Val Gly Arg Gly Thr Asn Ser Thr Gly Val Pro Arg Ser Asn Ser  
530 535 540

Gly Ser Gln Glu  
545